CLAIMS

What is claimed is:

1. A charge transformer, comprising:

a plurality of capacitors; and

a plurality of switches connected between said capacitors, said switches adapted to alternatively connect said capacitors in series and in parallel.

2. The charge transformer of claim 1, further comprising an input terminal, and wherein said switches are adapted to connect said capacitors in parallel between said input terminal and ground.

3. The charge transformer of claim 1, further comprising an output terminal, and wherein said switches are adapted to connect said capacitors in series between said output terminal and ground.

4. A system, comprising:

a charge sensitive device; and

a charge transformer adapted to be coupled between said charge sensitive device and a device under test.

5. The system of claim 4, wherein said charge sensitive device is a single electron transistor.

6. The system of claim 4, wherein said device under test supplies an input power, and said charge transformer is adapted to couple at least approximately half of said input power to said charge sensitive device.

7. The system of claim 4, wherein said device under test has a capacitance that is greater than a capacitance of said charge sensitive device.

8. The system of claim 4, wherein said charge transformer comprises:

a plurality of capacitors; and

a plurality of switches connected between said capacitors, said switches

being adapted to alternatively connect said capacitors in series and in parallel.

9. The system of claim 8, wherein said device under test supplies an input power signal having a first frequency, and said switches are adapted to alternatively connect said capacitors in parallel and series at a second frequency that exceeds said first frequency.

10. The system of claim 8, wherein said charge transformer further comprises an input terminal, and wherein said switches are adapted to connect said capacitors in parallel between said input terminal and ground.

11. The system of claim 8, wherein said charge transformer further comprises an output terminal, and wherein said switches are adapted to connect said capacitors in series between said output terminal and ground.

12. The system of claim 8, wherein:

said device under test has a capacitance, C_D;

said charge sensitive device has a capacitance, C_{CSD}; and

said charge transformer has a number, N, of capacitors, wherein N is determined by the square root of the product of C_D and C_{CSD}.

13. The system of claim 8, wherein:

said device under test has a capacitance, C_D;

said charge sensitive device has a capacitance, C_{CSD}; and

said charge transformer capacitors each have a capacitance, C, wherein C is determined by the square root of the quotient of C_D divided by C_{CSD}.

14. A method of coupling charge from a first device to a charge sensitive device, comprising:

charging a plurality of capacitors from a power signal provided by the first device; and

discharging said capacitors to the charge sensitive device.

15. The method of claim 14, wherein said charge sensitive device is a single electron transistor.

16. The method of claim 14, further comprising the step of alternatively repeating said charging step and said discharging step at a frequency greater than a frequency of said power signal.

17. The method of claim 14, wherein said charging step comprises connecting said capacitors in parallel.

18. The method of claim 14, wherein said discharging step comprises connecting said capacitors in series.

19. The method of claim 14, further comprising the step of providing a plurality of switches adapted to alternatively connect said capacitors in parallel and series.